

TEACHERS' RETIREMENT BOARD
INVESTMENT COMMITTEE

SUBJECT: 1998 Investment Management Plan

ITEM NUMBER: 7

ATTACHMENT(S): 3

ACTION: _____

DATE OF MEETING: July 8, 1998

INFORMATION: X

PRESENTER(S): Mr. Mitchell

EXECUTIVE SUMMARY

One of the 1997/98 Investment Branch objectives was to "Prepare and present the Investment Management Plan incorporating the asset allocation targets and ranges approved by the Investment Committee".

The Investment Management Plan (Plan) provides the framework for operation of the investment function. Periodically the Plan is updated to reflect the changes which have occurred in the investment strategy and policy as a result of individual Investment Committee decisions and actions. In addition, the Plan is reviewed to ensure that the factors that influenced initial decisions are still relevant in a changing investment environment.

Attachment 1 is the 1995 Investment Management Plan which has been modified to incorporate changes in investment policy since May 1995. The most substantial change is the elimination of the tactical asset allocation segment (pages eight and nine) and the addition of an investment structure segment which was referenced but not included in the 1995 Plan. All deletions are "hatched-out" and all additions are "underlined".

Pension Consulting Alliance (PCA), Watson Wyatt Worldwide (Watson & Wyatt), and staff are scheduled to provide oral presentations designed to provide:

1. Historical perspective
2. Summary of significant changes
3. Asset allocation targets
4. Implementation objectives

Panel presentations will be designed to stimulate discussion and to facilitate the exchange of ideas. The suggestions and modifications will be incorporated into the 1998 Investment Management Plan and returned to the Investment Committee for review at the August Investment Committee meeting.

1995 1998 INVESTMENT MANAGEMENT PLAN

EXECUTIVE SUMMARY

The Investment Management Plan was developed ~~in~~ within the context of the significant events which have occurred during the eighty-~~two~~ five year history of California State Teachers' Retirement System ("System", "STRS"). The System was primarily on a pay as-you-go basis until 1972. Since that time, increased contributions coupled with rapid economic growth have been compounded in more than \$~~50~~ 85 billion of investment assets. This document represents the most recent update of STRS's Investment Management Plan. STRS's Investment Management Plan is updated to reflect the changes which have occurred in the investment strategy and policy as a result of implementation of various recommendations. In addition, the Investment Management Plan is updated to ensure that the factors that impacted initial decisions are still relevant in the current environment.

The Teachers' Retirement Board ("Board") has found that to manage growth of assets in a prudent manner, it is necessary to establish a planning statement in the form of Investment Policies under which the portfolio will operate. The Board has sole and exclusive fiduciary responsibility to administer the investment assets in a manner that will assure the prompt delivery of benefits and related services to the plan participants and their beneficiaries. As a public pension fund, STRS is not subject to ERISA which governs corporate pension plans. However, the System's investment decision making continues to be based on the "prudent expert" standard for which the ERISA prudence standards serve as a basis. Additionally, the California Constitution requires diversification of risk across asset classes and reduction of employer costs.

This document will address general objectives governing the policies of the investment function and specific performance objectives. The general objectives are meant to provide a framework for the operation of the investment function. The System's performance objectives can be divided into: objectives for the overall investment function and objectives for ~~active and passive~~ investment managers.

The investment staff and the System's consultants worked together to create a variety of optimal asset allocation alternatives. Constraints placed on each asset category prevented unrealistic asset allocation scenarios from consideration. Seven asset allocation alternatives were presented with unique risk/return characteristics.

The asset allocation decision governs the allocation of the System's assets between public, private, fixed income and equity. Strategic ~~and tactical~~ allocation of the System's assets will be the most important factor in the determination of the realized total rate of return from the investment portfolio.

Strategic targets are established targeted amounts to be held in a variety of asset categories to achieve the identified performance objectives. In conjunction with the strategic target, a tactical range provides flexibility to adapt to changing market conditions. ~~Tactical asset allocation will be utilized on an opportunistic basis within the relevant tactical range as established in this Investment Management Plan.~~

~~Upon adoption of the strategic asset allocation targets and tactical asset allocation ranges, the next phase of the planning process is to identify an implementation framework. This is called investment structure. Subsequent to the establishment of strategic targets an investment structure will be designed to guide and direct future investment decisions.~~ In the preparation of the investment structure a variety of issues were addressed including:

1. ~~Parameters for tactical asset allocation shifts.~~
2. Active vs passive management styles including the relative percentage of each style.
3. The number and types of internal and external managers.
4. Monitoring and controlling the direct and indirect costs of each asset class.
5. Appropriate reporting standards and time horizons.

GENERAL OBJECTIVES

One goal for The California State Teachers' Retirement System is to "maintain a financially sound Retirement System". Within this context, the following general objectives are designed to establish a framework for the operation of the investment function and are nonspecific intentionally.

STRS general objectives are as follows:

1. The STRS's investment program must provide the means to pay benefits to its participants and their beneficiaries in the amounts and at the times called for through the investment of contributions and other fund assets.
2. Assets will be invested to produce an expected return on investments which is based on levels of liquidity and investment risk that are prudent and reasonable under the circumstances that exist from time to time. Such circumstances will change over time as new investment vehicles become available.
3. The reduction of the System's funding costs, within prudent levels of risk, is a consideration in the organization and structure of the investment portfolio.
4. Investment performance will be compared to other large private and public pension funds with special emphasis on comparisons with large public funds.
5. Active and passive management fees, trading costs, and transaction related expenses, will be aggressively monitored and controlled. Reducing the cost of managing the System's assets will increase portfolio return over time.
6. The Investment Branch will conduct an annual planning session including an estimate of cash flows and an updated financial projection highlighting any modifications to the performance objectives.
7. The System's investment program must operate in compliance with all applicable State and Federal laws and regulations concerning the investment of pension assets.
8. The asset structure must provide for diversification of risk between asset classes to manage the risk/return relationship through ~~both strategic and tactical~~ asset allocation.

PERFORMANCE OBJECTIVES

Performance objectives can be divided into two components: objectives for the general investment function and objectives for the individual ~~portfolio components~~ investment managers. The Investment Management Plan incorporates both levels of analysis in its monitoring of the System's performance.

There are four performance objectives for the overall fund:

1. Objective Relative to Strategic Asset Allocation Targets
2. Objective Relative to Inflation
3. Objective Relative to Actuarial Rate of Interest
4. Objective Relative to the System's Liabilities

The first objective results in a comparative benchmark which reflects the System's unique asset allocation policy. This performance objective is a composite of the target weighting for each asset category multiplied by the ~~estimated~~ expected return utilized in the compilation of the efficient frontier.

The inflation objective compares the investment performance against the rate of inflation as measured by the Consumer Price Index plus 3.5 percent.

The actuarial objective will be monitored relative to the long term assumed rate of growth as determined by the Board. The actuarial rate is currently ~~8.5~~ 8.0%.

The fourth objective recognizes that liabilities are claims to the System's assets and must be paid in a timely manner. This performance measurement standard is determined by a present value calculation of the future value of the System's participants benefit payments.

PERFORMANCE BENCHMARK

To facilitate the periodic reporting to the Investment Committee and to provide a relative measure to gauge the success of ~~active and passive~~ both investment managers; ~~and in each asset category has a performance objective reflecting a specific market~~ categories, individualized performance benchmark are approve by the Board. The approved performance benchmarks are shown below:

Total Public Equity	- Weighted Russell 3000 Index and MSCI EAFE Index
Domestic Equity	- S&P 500 Index (large cap stocks) - Russell 2500 Special Index (small cap stocks)
International Equity	- MSCI EAFE Index
Total Public Debt	- Weighted LPF Index and World Government Bond Index
Domestic Debt	- Salomon Large Pension Fund Index
International Debt	- Salomon World Government Bond Index
Private Equity	- Weighted IPC <u>NCREIF</u> Property Index and CPI + 12%
Real Estate	- IPC <u>NCREIF</u> Property Index
Alternative Inv.	- Consumer Price Index (CPI) + 12%

Each ~~active and passive~~ investment manager, for domestic and international, equity and fixed income, has an individualized benchmark designed to measure their ~~relative~~ performance relative to the objective identified in their investment guidelines.

ASSET ALLOCATION

When a portfolio's performance is compared to its benchmark, 91% of the difference in return is attributable to the asset allocation decision. As the past twelve years have shown, the volatility of the total rate of return for each asset category can be substantial.

A distinction exists between the core holding segment and tactical asset allocation segment of the investment portfolio. Core holdings are the amounts strategically allocated on a "relatively permanent" basis to the respective asset category. Capital market constraints, imposed by the sheer size of the investment portfolio, require STRS to maintain some exposure to the domestic equity and domestic fixed income markets. Tactical asset allocation is the directing of cash flows and reallocation of existing assets. Tactical asset allocation should add value to the total investment portfolio by increasing or decreasing exposure to selected asset categories on an opportunistic basis.

This distinction between the core holdings and tactical asset allocation segments of the investment portfolio removes the misconception of utilizing the core holdings portfolios (less liquid assets) for tactical asset allocation purposes. Only the most liquid securities could facilitate, on a cost effective basis, the timely and orderly purchase and sale required of tactical asset allocation movements.

The core holdings segment would contain the public equity, public debt, and private equity portfolios. The core domestic and international equity portfolios would contain securities that MSCI EAFE Index (as allocated). This core equity portfolio would contain smaller capitalized stocks and emerging market securities in addition to the more liquid securities. The composition of the core domestic debt portfolio would approximate the risk and return characteristics of the Salomon Brothers LPF Index. Part of the core debt portfolio would include international fixed income securities with the Salomon World Government Bond Index as the benchmark. The private equity portfolios would contain investments within the guidelines as established by the Investment Committee for real estate, venture capital, buyout, and special situations. Private equity investments would be acquired dependent on the availability of appropriate investments.

The tactical asset allocation segment of the investment portfolio would contain the most liquid assets to facilitate transactions and to reduce trading costs. The most liquid securities are the S&P 500 securities for domestic equity, US Treasury securities for domestic fixed income, and MSCI EAFE securities (or selected countries contained in the MSCI EAFE Index) for international equity.

Because there are capital market conditions that favor the holding of shorter term securities, the liquidity account is included in the asset allocation segment. The liquidity account will hold securities as identified in the Fixed Income Policies and Procedures.

Alternative Asset Allocations

Pension Consulting Alliance, ~~Institutional Property Consulting, Abbott Capital Management, Pathway Capital Management, PCA\Kenneth Leventhal,~~ and investment staff provided analysis regarding a variety of possible asset allocation combinations for the System. Utilizing the data accumulated during the asset simulation process, alternative optimal asset structures were created and analyzed. Attachment 2 of Item 7 is a synopsis prepared by Pension Consulting Alliance covering: (1) Rationale for an Asset Allocation Policy, (2) Asset Allocation Process, (3) Developing a Policy Mix for the Portfolio, and (4) A Review of STRS Asset Allocation Policy. Constraints were placed on each asset category to prevent unrealistic or unattainable structures from consideration. The maximum and minimum constraints used are listed below:

	Maximum	Minimum
Liquidity	5%	1%
Domestic Equity	70%	25%
International Equity	20%	5%
Domestic Fixed Income	60%	25%
Global Asset Allocation	5%	0%
Private Equity *	8%	4%

* includes both real estate and alternative investments

Operating within the identified constraints, a variety of optimal asset structures were created each with a unique risk and return pattern. ~~Seven representative asset structures are listed below. There is not a single quantifiable standard to judge the relative attractiveness of an individual asset structure. Each asset structure contains an expected rate of return, expected level of risk (measured by the standard deviation), Sharpe ratio, and Treynor measure. The Sharpe ratio is calculated by dividing the expected return by the expected risk. The Treynor measure is calculated by deducting the risk free return from the expected return then dividing the resultant number by the expected risk.~~

Alternative Asset Structure Scenarios

	1	2	3	4	5	6	7
Liquidity	4%	2%	1%	2%	1%	1%	1%
Domestic Equity	26	25	30	34	34	40	42
International Equity	13	15	15	15	18	17	20
Domestic Fixed	44	45	41	36	34	30	27
Global Asset Allocation	5	5	5	5	5	4	2
Private Equity *	8	8	8	8	8	8	8

Expected Return	9.2	9.4	9.5	9.6	9.7	9.8	9.9
Standard Deviation	8.0	8.2	8.5	8.9	9.2	9.6	10.0
Sharpe Ratio	1.15	1.14	1.12	1.08	1.05	1.02	0.99
Treynor Measure	0.52	0.54	0.54	0.52	0.51	0.50	0.49

* includes both real estate and alternative investments

STRATEGIC ASSET ALLOCATION

The System's asset allocation strategy ~~must utilize~~ utilized a design for today's needs, while anticipating the future capacity and growth of the investment portfolio. A strategic asset allocation (~~core holdings~~) target for public equity, private equity, liquidity, and public debt was established after reviewing ~~alternative asset structure number five identified above a comprehensive asset allocation analysis completed by Pension Consulting Alliance.~~ In conjunction with the strategic target, a range for each asset category has been established to provide flexibility designed to reduce rebalancing costs and allow flexibility to adapt to changing market conditions. To control the risk and return relationship each asset category must be rebalanced to the strategic target occasionally. Rebalancing latitude ~~allowed~~ is important and can significantly affect the performance of the portfolio. Blind adherence to a narrow range ~~is one reason several pension funds performed poorly over the past few years~~ increases transactions costs without a documented increase in performance. A rebalancing range that is too wide may cause undesired changes in the asset allocation. The identified range can be modified by the Investment Committee as determined appropriate. The ~~suggested range should be established at~~ is plus or minus 2 three percent around the strategic target for the major asset categories (domestic equity, international equity, and fixed income). The range is plus or minus two percent around the strategic target for the other asset categories (private equity and cash). The ~~2 two or three percent range~~ refers to the total market value of the total investment portfolio and should not be interpreted as 2 percent of the respective asset category.

TACTICAL ASSET ALLOCATION

~~Tactical asset allocation is the directing of cash flows and reallocation of existing assets. Tactical asset allocation is used on an opportunistic basis around the strategic target and within the range established for each asset category. Together with the strategic asset allocation targets, a tactical asset allocation target was established for the public equity, public debt, and liquidity portfolios. A range was created around the tactical asset allocation target to provide flexibility to adapt to changing capital market conditions. Specific procedures covering the tactical asset allocation process have been previously approved by the Investment Committee.~~

	Strategic Target	Proposed Range
Strategic Asset Allocation		
Core domestic equity		32%

Core international equity	16%
Core domestic debt	33%
Core private equity	8%

~~Total Strategic Asset Allocation 89%~~

~~Tactical Asset Allocation~~

Asset allocation debt	5%	0 - 11%
Asset allocation equity	5%	0 - 11%
Asset allocation liquidity	1%	0 - 11%

~~Total Tactical Asset Allocation 11% 0 - 18%~~

- ~~• By necessity the allocated not funded portion of the private equity and international equity asset classes are included in the total asset allocation range. This amount will change over time, however as of March 31, 1995, the total was approximately 7% of total assets.~~

~~Over the planning horizon, 89 percent of the System's assets are directed by the strategic asset allocation process. Eleven percent of the total assets have been designated to be directed as identified in the tactical asset allocation process. The amounts allocated to the private equity asset class but not yet funded in the total tactical asset allocation range, but will change over time as market conditions vary.~~

~~To provide context to the strategic and tactical allocation amounts, the chart was expanded to include market values of the STRS investment portfolio as of December 31, 1994 as shown below:~~

	Strategic Target	Proposed Range	December 1994
Strategic Asset Allocation			
Core domestic equity	32%		34%
Core international equity	16%		13%
Core domestic debt	33%		34%
Core private equity	8%		4 %
Total Strategic Asset Allocation	89%		85%
Tactical Asset Allocation			
Asset allocation debt	5%	0 - 11%	9%
Asset allocation equity	5%	0 - 11%	0%
Asset allocation liquidity	1%	0 - 11%	6%
Total Tactical Asset Allocation	11%	0 - 18%	15%

- ~~By necessity the allocated not funded portion of the private equity and international equity asset classes are included in the total asset allocation range. This amount will change over time, however as of March 31, 1995, the total was approximately 7% of total assets.~~

<u>-</u>	<u>Strategic Target</u>	<u>Range</u>
<u>Strategic Asset Allocation</u>		
<u>Domestic Equity</u>	<u>38%</u>	<u>35% to 41%</u>
<u>International Equity</u>	<u>25%</u>	<u>22% to 28%</u>
<u>Total Public Equity</u>	<u>63%</u>	<u>57% to 69%</u>
<u>Debt</u>	<u>26%</u>	<u>23% to 29%</u>
<u>Cash</u>	<u>1%</u>	<u>0% to 3%</u>
<u>Total Public Debt</u>	<u>27%</u>	<u>23% to 32%</u>
<u>Private Equity - Funded</u>	<u>10%</u>	<u>8% to 12%</u>
<u>Allocated Not Funded - S&P 500 Index *</u>		
<u>Total Strategic Asset Allocation</u>	<u>100%</u>	

* Please note that the allocated not funded portion of the private equity can be invested in the S&P 500 Indexed portfolio. This amount is not counted toward the domestic equity allocation.

INVESTMENT STRUCTURE

Investment structure guides and directs present and future investment decisions in a prudent manner. In the preparation of the investment structure a variety of issues were addressed including:

1. Active vs passive management styles including the relative percentage of each style.
2. The number and types of internal and external managers.
3. Appropriate reporting standards and time horizons.

ASSET ALLOCATION STRUCTURE

1. Based on academic studies, it has been determined that 91% of the total return is attributable to the asset allocation decision. Consequently, each asset category shall remain within the range approved in the asset allocation adopted by the Board.
2. Control of the cash flows is critical to the success of long term investment strategies. Estimated cash flows shall be provided to the Investment Committee annually.
3. Each asset category shall prepare a report for the Chief Investment Officer, at least quarterly, identifying the salient aspects of the investments including a statement certifying compliance with approved policies.

EQUITY STRUCTURE

1. The domestic equity portfolio will be managed using both passive (80% target) and active (20% target) strategies. The passive component will have both internal and external managers as approved by the Board. The active component will be managed externally. The number of active domestic equity managers is limited to sixteen.
2. The non-U.S. equity markets are more inefficient allowing active management to add value. The target will be an equal amount of active management (50%) and passive management (50%) strategies. Emerging markets will be utilized to enhance return and diversification. All non-U.S. equity will be managed externally with the number of active non-U.S. equity managers limited to sixteen.

FIXED INCOME STRUCTURE

1. The fixed income portfolio shall be comprised of investment grade securities using an enhanced indexing strategy. The internally managed portfolio will emphasize tracking the risk characteristics of the performance benchmark.
2. Cash reserves, including the cash portion of equity portfolios, shall be managed internally with emphasis on safety and liquidity. The portfolio shall be comprised of investment grade securities, A1/P1 rated short term debt, and other appropriate securities as approved in the policies and procedures.

ALTERNATIVE INVESTMENT STRUCTURE

1. The alternative investment portfolio will be comprised of limited partnerships and co-investments focusing on commitments to domestic venture and buyout partnerships and international buyout partnerships. The alternative investment advisor and staff will analyze each partnership and conduct appropriate due diligence with the objective of achieving upper quartile performance, as identified by Venture Economics.
2. Private equity investments have substantial fees and costs, consequently, emphasis will be placed on negotiating, monitoring, and controlling the direct and indirect costs of each limited partnership investment.

REAL ESTATE STRUCTURE

1. The real estate portfolio will be comprised of direct real estate investments and commingled funds (opportunistic funds) with adopted targets of 75% low to moderate risk and 25% moderate to high risk investments.
2. To more closely align the interests of the plan sponsor and real estate manager, emphasis will be placed on negotiating, monitoring, and controlling the cash flow (both income and expense) associated with each property.

NOTE: Attachment 2 is not available in electronic format at this time.

NOTE: Attachment 3 is not available in electronic format at this time.